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P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
RAO, ANAND SHASHIKANT	
ART UNIT	**PAPER NUMBER**
2613	

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/077,059	COHEN, ROBERT A.	
	Examiner	Art Unit	
	Andy S. Rao	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/15/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinzelman et al., (hereinafter referred to as "Heinzelman") in view of Sugiyama.

Heinzelman discloses a method for data transmission (Heinzelman: column 10, lines 25-30), comprising the steps of: receiving a multimedia stream (Heinzelman: column 1, lines 30-37) through an electronic medium (Heinzelman: column 3, lines 60-67), the stream comprising a plurality of signal components including motion information (Heinzelman: column 4, lines 1-9); based on the components adding a plurality of error protection units to the multimedia stream (Heinzelman: column 5, lines 30-65), as in claim 1. However, even though Heinzelman discloses the transmission motion information in an MPEG-4 coded stream (Heinzelman: column 4, lines 43; figure 3), it fails to disclose that the motion information is comprised of a plurality of vectors, as in the claim. Sugiyama discloses that for MPEG coding environments, it is known to

represent motion information in the form of a plurality of vectors manipulated by its disclosed vector unifier in order efficiently code motion information (Sugiyama: column 7, lines 5-18). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the use Sugiyama's vector unifying step to represent motion information in the form of a plurality of vectors into the Heinzelman method in order to efficiently code motion information. The Heinzelman method, now incorporating the Sugiyama vector unifying step, has all of the features of claim 1.

Heinzelman discloses a method for data transmission (Heinzelman: column 10, lines 25-30), comprising the steps of: receiving a video stream (Heinzelman: column 2, lines 35-65) through an electronic medium (Heinzelman: column 3, lines 60-67), the video stream comprising a plurality of signal components (Heinzelman: column 4, lines 1-9), assigning an importance to the components including motion information (Heinzelman: column 3, lines 10-25); based on the importance partitioning the video stream (Heinzelman: column 2, lines 35-60); and based on the importance of the components adding a plurality of error protection units to the video stream (Heinzelman: column 5, lines 30-65), as in claim 2. However, even though Heinzelman discloses the transmission motion information in an MPEG-4 coded stream (Heinzelman: column 4, lines 43; figure 3), it fails to disclose that the motion information is comprised of a plurality of vectors, as in the claim. Sugiyama discloses that for MPEG coding environments, it is known to represent motion information in the form of a plurality of vectors manipulated by its disclosed vector unifier in order efficiently code motion information (Sugiyama: column 7, lines 5-18). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the use Sugiyama's vector unifying step to represent motion information in the form

of a plurality of vectors into the Heinzelman method in order to efficiently code motion information. The Heinzelman method, now incorporating the Sugiyama vector unifying step, has all of the features of claim 2.

Heinzelman discloses a method for data transmission (Heinzelman: column 10, lines 25-30), comprising the steps of: generating a video transmission (Heinzelman: figure 2); converting the video transmission to a video stream (Heinzelman: column 2, lines 55-65) through an electronic medium (Heinzelman: column 3, lines 60-67), the video stream comprising a plurality of signal components including motion information (Heinzelman: column 4, lines 1-9); based on the importance partitioning the video stream (Heinzelman: column 2, lines 35-60); and based on the importance of the components adding a plurality of error protection units to the video stream (Heinzelman: column 5, lines 30-65), as in claim 2. However, even though Heinzelman discloses the transmission motion information in an MPEG-4 coded stream (Heinzelman: column 4, lines 43; figure 3), it fails to disclose that the motion information is comprised of a plurality of vectors, as in the claim. Sugiyama discloses that for MPEG coding environments, it is known to represent motion information in the form of a plurality of vectors manipulated by its disclosed vector unifier in order efficiently code motion information (Sugiyama: column 7, lines 5-18). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the use Sugiyama's vector unifying step to represent motion information in the form of a plurality of vectors into the Heinzelman method in order to efficiently code motion information. the Heinzelman method, now incorporating the Sugiyama vector unifying step, has all of the features of claim 3.

Regarding claim 4, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has assigning an importance to the plurality of vectors (Heinzelman: column 3, lines 10-25); and based on the importance of the components adding a plurality of error protection units to the video stream based on the importance (Heinzelman: column 5, lines 30-65), as in the claim.

Regarding claim 5, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has sending the multimedia stream with the error protection units over an electronic medium (Heinzelman: column 2, lines 60-67), as in the claim.

Regarding claim 6, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has the multimedia stream being a video stream (Heinzelman: column 2, lines 35-40), as specified.

Regarding claim 7, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has the multimedia stream as an MPEG format stream (Heinzelman: column 1, lines 60-65), as in the claim.

Regarding claim 8, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has the vectors are used to form one or more data elements from the group consisting of: a total energy (or variance) data element (Sugiyama: column 4, lines 30-40), a mean or variance data element, a global direction measure data element (Sugiyama: column 4, lines 40-45), and a plurality of small random motion data elements (Sugiyama: column 5, lines 20-24), and wherein the error protection units are added to the multimedia stream based on the data elements (Heinzelman: column 5, lines 25-65), as in the claim.

Regarding claim 9, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has of selecting a plurality similar vectors from the vectors based on a direction and (Sugiyama: column 5, lines 20-24) adding the error protection units based on the similar vectors (Heinzelman: column 5, lines 25-65), as in the claim.

Regarding claim 10, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has sending the video stream with the error protection units over an electronic medium (Heinzelman: column 2, lines 60-67), as in the claim.

Regarding claim 11, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has the video stream as an MPEG format stream (Heinzelman: column 1, lines 60-65), as in the claim.

Regarding claim 12, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has the vectors are used to form one or more data elements from the group consisting of: a total energy (or variance) data element (Sugiyama: column 4, lines 30-40), a mean or variance data element, a global direction measure data element (Sugiyama: column 4, lines 40-45), and a plurality of small random motion data elements (Sugiyama: column 5, lines 20-24), wherein the error protection units are added to the video stream based on the data elements (Heinzelman: column 5, lines 25-65); and wherein the video stream is partitioned based on the data elements (Heinzelman: column 8, lines 5-25), as in the claim.

Regarding claim 13, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has of selecting a plurality similar vectors from the vectors based on a direction and (Sugiyama: column 5, lines 20-24) adding the error protection units based on the similar vectors (Heinzelman: column 5, lines 25-65), as in the claim.

Regarding claim 14, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has sending the video stream with the error protection units over an electronic medium (Heinzelman: column 2, lines 60-67), as in the claim.

Regarding claim 15, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has the video stream as an MPEG format stream (Heinzelman: column 1, lines 60-65), as in the claim.

Regarding claim 16, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has the vectors are used to form one or more data elements from the group consisting of: a total energy (or variance) data element (Sugiyama: column 4, lines 30-40), a mean or variance data element, a global direction measure data element (Sugiyama: column 4, lines 40-45), and a plurality of small random motion data elements (Sugiyama: column 5, lines 20-24), wherein the error protection units are added to the video stream based on the data elements (Heinzelman: column 5, lines 25-65); and wherein the video stream is partitioned based on the data elements (Heinzelman: column 8, lines 5-25), as in the claim.

Regarding claim 17, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has of selecting a plurality similar vectors from the vectors based on a direction and (Sugiyama: column 5, lines 20-24) adding the error protection units based on the similar vectors (Heinzelman: column 5, lines 25-65), as in the claim.

Regarding claim 18, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has step of adding UEP to the multimedia stream based on the vectors (Heinzelman: column 5, lines 35-50: table 2), as in the claim.

Regarding claims 19-20, the Heinzelman method, now incorporating the Sugiyama vector unifying step, has step of adding UEP to the video stream based on the vectors (Heinzelman: column 5, lines 35-50: table 2), as in the claims.

Heinzelman discloses a system (Heinzelman: figures 2 & 14), comprising: a motion information extractor for extracting one or more types of motion information from a video stream (Heinzelman: column 4, lines 1-7); an error protection controller for adding error protection to the video stream (Heinzelman: column 5, lines 35-50); an analysis software tool for assigning an importance to each of the signal components (Heinzelman: column 3, lines 10-20); controlling the error protection controller to add error protection based on the assigned importance (Heinzelman: column 4, lines 45-65), and controlling a video stream partitioner for partitioning the video stream (Heinzelman: column 8, lines 1-25); and a transmitter for transmitter for transmitting the video stream to a device (Heinzelman: column 8, lines 40-45), as in claim 1. However, even though Heinzelman discloses the transmission motion information in an MPEG-4 coded stream (Heinzelman: column 4, lines 43; figure 3), it fails to disclose that the motion information is comprised of one or more vectors, as in the claim. Sugiyama discloses that for MPEG coding environments, it is known to represent motion information in the form of a plurality of vectors manipulated by its disclosed vector unifier in order efficiently code motion information (Sugiyama: column 7, lines 5-18). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the use Sugiyama's vector unifier to represent motion information in the form of a plurality of vectors into the Heinzelman system order to efficiently code motion information. The Heinzelman system, now incorporating the Sugiyama vector unifier, has all of the features of claim 21.

Heinzelman discloses a computer readable medium (Heinzelman: column 1, lines 25-30), having stored thereon computer executable process steps operative to control a computer to document source files (Heinzelman: column 9, lines 20-45), comprising the steps of: receiving a multimedia stream (Heinzelman: column 1, lines 30-37) through an electronic medium (Heinzelman: column 3, lines 60-67), the stream comprising a plurality of signal components including motion information (Heinzelman: column 4, lines 1-9); based on the components adding a plurality of error protection units to the multimedia stream (Heinzelman: column 5, lines 30-65), as in claim 1. However, even though Heinzelman discloses the transmission motion information in an MPEG-4 coded stream (Heinzelman: column 4, lines 43; figure 3), it fails to disclose that the motion information is comprised of a plurality of vectors, as in the claim. Sugiyama discloses that for MPEG coding environments, it is known to represent motion information in the form of a plurality of vectors manipulated by its disclosed vector unifier in order efficiently code motion information (Sugiyama: column 7, lines 5-18). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the use Sugiyama's vector unifying step to represent motion information in the form of a plurality of vectors into the Heinzelman computer implemented method in order to efficiently code motion information. The Heinzelman computer implemented method, now incorporating the Sugiyama vector unifying step, has all of the features of claim 22.

Heinzelman discloses a computer readable medium (Heinzelman: column 1, lines 25-30), having stored thereon computer executable process steps operative to control a computer to document source files (Heinzelman: column 9, lines 20-45), comprising the steps of: receiving a video stream (Heinzelman: column 2, lines 35-65) through an electronic medium (Heinzelman:

column 3, lines 60-67), the video stream comprising a plurality of signal components (Heinzelman: column 4, lines 1-9), assigning an importance to the components including motion information (Heinzelman: column 3, lines 10-25); based on the importance partitioning the video stream (Heinzelman: column 2, lines 35-60); and based on the importance of the components adding a plurality of error protection units to the video stream (Heinzelman: column 5, lines 30-65), as in claim 2. However, even though Heinzelman discloses the transmission motion information in an MPEG-4 coded stream (Heinzelman: column 4, lines 43; figure 3), it fails to disclose that the motion information is comprised of a plurality of vectors, as in the claim. Sugiyama discloses that for MPEG coding environments, it is known to represent motion information in the form of a plurality of vectors manipulated by its disclosed vector unifier in order efficiently code motion information (Sugiyama: column 7, lines 5-18). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the use Sugiyama's vector unifying step to represent motion information in the form of a plurality of vectors into the Heinzelman computer implemented method in order to efficiently code motion information. The Heinzelman computer implemented method, now incorporating the Sugiyama vector unifying step, has all of the features of claim 23.

Heinzelman discloses a computer readable medium (Heinzelman: column 1, lines 25-30), having stored thereon computer executable process steps operative to control a computer to document source files (Heinzelman: column 9, lines 20-45), comprising the steps of: generating a video transmission (Heinzelman: figure 2); converting the video transmission to a video stream (Heinzelman: column 2, lines 55-65) through an electronic medium (Heinzelman: column 3, lines 60-67), the video stream comprising a plurality of signal components including motion

information (Heinzelman: column 4, lines 1-9); based on the importance partitioning the video stream (Heinzelman: column 2, lines 35-60); and based on the importance of the components adding a plurality of error protection units to the video stream (Heinzelman: column 5, lines 30-65), as in claim 2. However, even though Heinzelman discloses the transmission motion information in an MPEG-4 coded stream (Heinzelman: column 4, lines 43; figure 3), it fails to disclose that the motion information is comprised of a plurality of vectors, as in the claim. Sugiyama discloses that for MPEG coding environments, it is known to represent motion information in the form of a plurality of vectors manipulated by its disclosed vector unifier in order efficiently code motion information (Sugiyama: column 7, lines 5-18). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the use Sugiyama's vector unifying step to represent motion information in the form of a plurality of vectors into the Heinzelman computer implemented method in order to efficiently code motion information. the Heinzelman computer implemented method, now incorporating the Sugiyama vector unifying step, has all of the features of claim 24.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bahl discloses a method for transmitting video information over a communication channel. Khansari discloses a low complexity error resilient coder. Murakami discloses a multimedia data transmission system. Kikuchi discloses a video coding apparatus and method which codes information indicating whether an intraframe or interframe predictive coding mode is used. Pearlman discloses a N-dimensional data compression using set partitioning.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2613

ANDY RAO
PRIMARY EXAMINER

asr
August 11, 2004